WHAT IS CLAIMED IS:

1. A thermally conductive composite material for reducing electromagnetic emissions generated by an electronic device, said thermally conductive composite material comprising in combination:

a thermally conductive material in particulate form; and

an electromagnetic-energy-absorptive material in particulate form,

said thermally conductive material and said electromagnetic-energy-absorptive material being suspended within a polymeric base material, said polymeric base material being substantially transparent to electromagnetic energy,

wherein said thermally conductive material facilitates transfer of thermal energy from said electronic device and said electromagnetic-energy-absorptive material reduces electromagnetic emissions generated by the device.

2. A thermally conductive composite material as claimed in claim 1 wherein at least one of said thermally conductive material and said electromagnetic-energy-absorptive material comprises particles in the form of granules having a shape selected from the group consisting of spheroids, ellipsoids and irregular spheroids.

3. A thermally conductive composite material as claimed in claim 1 wherein at least one of said thermally conductive material and said electromagnetic-energy-absorptive material comprises particles having a form selected from the group consisting of strands, flakes, powder and combinations thereof.

4. A thermally conductive composite material as claimed in claim 1 wherein said

thermally conductive material is selected from the group consisting of aluminum nitride, boron nitride, iron, metallic oxides and combinations thereof.

5. A thermally conductive composite material as claimed in claim 1 wherein said thermally conductive material is a ceramic material.

6. A thermally conductive composite material as claimed in claim 1 wherein said electromagnetic-energy-absorptive material is selected from the group consisting of electrically conductive material; metallic silver; carbonyl iron powder; an alloy of iron, silicon and aluminum; ferrites; iron silicide; magnetic alloys; magnetic flakes; magnetic materials; and combinations thereof.

7. Canceled.

8. Canceled.

9. A thermally conducting composite material as claimed in claim 1 wherein said polymeric base material has a relative dielectric constant of less than approximately 4 and a loss tangent of less than approximately 0.1.

10. A thermally conductive composite material as claimed in claim 1 wherein said polymeric base material is selected from the group consisting of elastomers, natural rubbers, synthetic rubbers, PDP, EPDM rubber, and combinations thereof.

11. A thermally conductive composite material as claimed in claim 1 wherein said



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polymeric base material comprises a polymer.

12. A thermally conductive composite material as claimed in claim 1 wherein said polymeric base material is selected from the group consisting of silicone, fluorosilicone, isoprene, nitrile, chlorosulfonated polyethylene, neoprene, fluoroelastomer, urethane, thermoplastics, thermoplastic elastomer (TPE), polyamide TPE, thermoplastic polyurethane (TPU), and combinations thereof.

13. A thermally conductive composite material as claimed in claim 1 wherein said polymeric base material is a solid material selected from the group consisting of thermoplastic and thermosetting materials.

14. A thermally conductive composite material as claimed in claim 1 wherein said polymeric base material is a liquid.

15. A thermally conductive composite material as claimed in claim 14 wherein said liquid is selected from the group consisting of silicones, epoxies, polyester resins, and combinations thereof.

16. A thermally conductive composite material as claimed in claim 1 wherein said polymeric base material comprises a phase-change material existing in a solid phase at ambient room temperature and transitioning to a liquid phase at equipment-operating temperatures.

17. A thermally conductive composite material as claimed in claim 1 wherein said

polymeric base material comprises a mixture of a paraffin wax and an ethylene-vinyl acetate copolymer.

18. A thermally conductive composite material as claimed in claim 1 wherein said polymeric base material comprises a synthetic wax having a melting point of approximately 100°C and a molecular weight of approximately 1000.

19. A thermally conductive composite material as claimed in claim 1 wherein said electromagnetic-energy-absorptive material has a relative magnetic permeability greater than about 3.0 at approximately 1.0 GHz and greater than about 1.5 at 10 GHz.

20. A thermally conductive composite material as claimed in claim 1 wherein said composite material is in the form of a sheet having a thickness greater than approximately 0.01 inches.

21. A thermally conductive composite material as claimed in claim 1 wherein said composite material is in the form of a sheet having a thickness less than approximately 0.18 inches.

22. A thermally conductive composite material as claimed in claim 1 wherein said composite material is in the form of a sheet, and further comprises an adhesive on at least one side of said sheet.

23. A thermally conductive composite material as claimed in claim 22 wherein said adhesive is a thermoconductive adhesive.

24. A thermally conductive composite material as claimed in claim 22 wherein said adhesive is a pressure-sensitive, thermally conductive adhesive.

25. A thermally conductive composite material as claimed in claim 22 wherein said adhesive is based on compounds selected from the group consisting of acrylics, silicones, rubbers and combinations thereof.

26. A thermally conductive composite material as claimed in claim 22 wherein said adhesive further comprises a ceramic powder.

27. A method of reducing electromagnetic emissions produced by a device comprising the steps:

(a) providing a thermally conductive material in particulate form;

(b) providing an electromagnetic-energy-absorptive material in particulate form;

(c) combining the thermally conductive material with the electromagnetic-energy-absorptive material;

(d) suspending the combined thermally conductive material and electromagnetic-energy-absorptive material in a polymeric base material; and

(e) placing the combined thermally conductive material and electromagnetic-energy-absorptive material suspended in a polymeric base material between said device and a proximate structure.

28. Canceled.

29. Canceled.

30. The method of claim 27 wherein the proximate structure comprises a heat sink.

31. The method of claim 27 wherein said device comprises an integrated circuit.